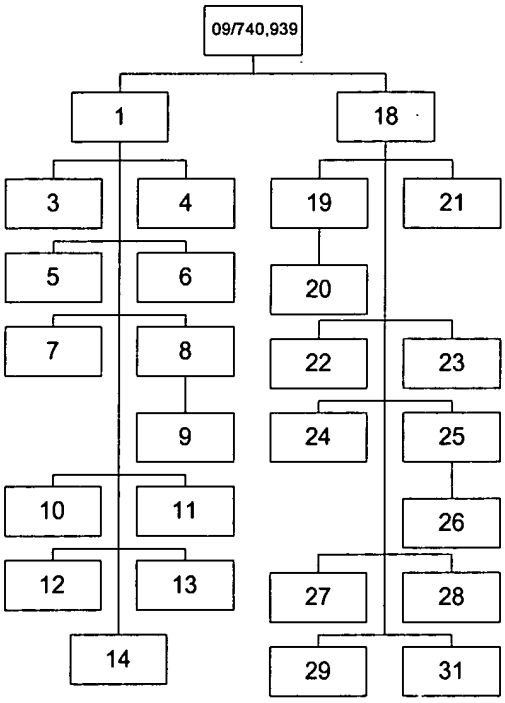
REMARKS

Claims 2, 15-17, and 30 are herein canceled. Various claim dependencies are herein amended, leaving the pending claims as shown in the chart below.



The claim amendments contain no new matter. Claims 1 and 18 now include requirements relating to the frequency bands of adjacent pulses overlapping. This limitation is supported in the originally-filed specification at, e.g., Fig. 2. In Fig. 2 it can be seen that the frequency band covered by pulse 40 overlaps with the frequency band covered by pulse 42. The overlap area is indicated by 40_1 and 42_1. Various other editorial changes to the claims have been made for the sake of uniformity with the independent claims 1 and 18.

The Examiner rejected all of claims 1-31 under 35 U.S.C. § 102(e) as being anticipated by Walance et al. (6,499,649). In making this rejection, the Examiner asserted that Walance met the requirement of former claim 2 for overlap in the plurality of frequency pulses. In particular, the Examiner asserted that Walance meets this requirement by virtue of the swept sinusoidal wave shown in Walance's Fig. 2.

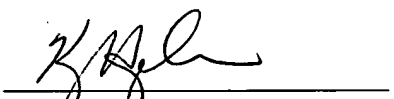
Although Walance does teach the creation of pulses from the sinusoidal, Walance does not teach or suggests that adjacent ones of the pulses would have overlapping frequency bands. Therefore, Walance would not be able to attain the advantages set forth in applicant's specification, and also cannot be said to reasonably read on the requirements of either of independent claims 1 or 18, as now amended. Furthermore, applicant respectfully finds in Walance no teaching or suggestion that would have enabled the person of ordinary skill to have achieved the subject matter of either of these independent claims. Additional, untaught modifications would have been required.

For these reasons, applicant respectfully submits that the claims, as now amended, patentably distinguish over the teachings of Walance. Applicant therefore respectfully request the Examiner now to withdraw this rejection of claims 1, 3-14, 18-29, and 31.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please cancel claims 2, 15-17, and 30, without prejudice or disclaimer.

The claims are amended as follows:

1. (Amended two times) A time domain reflectometry method for determining properties of a transmission channel, comprising:

generating, at one end of the channel, a plurality of pulses covering different frequency bands, and

processing, as received signals, the echoes provided by the plurality of pulses at said one end of the channel;

wherein the generating is performed so that the frequency bands of adjacent ones of the plurality of pulses overlap.

~~2. (Amended) A method according to claim 1, wherein the generating is performed so that the frequency bands of the plurality of pulses overlap.~~

3. (Amended two times) A method according to claim [2] 1, wherein the overlapping of the frequency bands is such that, after reflection and said processing, the frequency spectrum of the plurality of pulses is practically flat.

4. (Amended two times) A method according to claim 1, further comprising:

providing each of the plurality of pulses with a given amplification or attenuation, and

providing pulses of the received signals with the corresponding attenuation or amplification.

5. (Amended two times) A method according to claim 1, further comprising subjecting the received signals to a synchronous averaging.

6. (Amended two times) A method according to claim 1, further comprising subjecting the received signals to a matched filtering.

7. (Amended two times) A method according to claim 1, further comprising suppressing noise, in medium and high frequency pulses of the received signals, by

estimating the noise for the part of the received signal after the channel end echo, and

determining a threshold above which the received signals are taken into consideration.

8. (Amended two times) A method according to claim 1, wherein the processing of the received signals is performed so that the received signals are processed in their own frequency bands, and then added.

9. (Amended) A method according to claim 8, further comprising detecting the variation with time of one or more of:

the modulus of the received signals, and

the frequency of the received signals.

10. (Amended two times) A method according to claim 1, wherein the generating of the plurality of pulses is performed so as to generate complex analytical pulses.

11. (Amended two times) A method according to claim 1, further comprising selecting the frequency bandwidth and the amplitude of low frequency pulses of the received signals according to the channel attenuation and its compliancy in terms of egress.

12. (Amended two times) A method according to claim 1, wherein the plurality of pulses are generated sequentially or simultaneously.

13. (Amended two times) A method according to claim 1, wherein at least one of said properties being determined comprises the locations of defects of the channel.

14. (Amended two times) A method according to claim 1, wherein

said transmission channel comprises a telephone line between a central office and a subscriber, and

the processing of the received signals is performed at the central office.

~~15. (Amended three times) A method for testing the properties of transmission channels between a central office and a subscriber, comprising using time domain reflectometry to test said properties.~~

~~16. (Amended two times) A method according to claim 15, wherein the time domain reflectometry step comprises:~~

~~generating, at one end of the channel, a plurality of pulses covering different frequency bands, and~~

~~detecting echoes provided by these pulses at the same end of the line.~~

~~17. (Amended three times) An apparatus for testing the properties of transmission channels between a central office and a subscriber, comprising a time domain reflectometry test circuit.~~

18. (Amended three times) An apparatus [according to claim 17] for testing the properties of transmission channels between a central office and a subscriber, comprising a time domain reflectometry test circuit, wherein said time reflectometry test circuit comprises:

a pulse generator generating a plurality of pulses, at one end of the line, covering different frequency bands, and

an echo processor processing the echoes provided by these pulses at the same end of the channel;

wherein the different frequency bands of adjacent ones of the pulses are overlapping.

19. (Amended two times) An apparatus according to claim 18, wherein the different frequency bands are overlapping.

20. (Amended two times) An apparatus according to claim 19, wherein said echo processor processes the reflected pulses such that the frequency spectrum is practically flat after reflection and processing.

21. (Amended two times) An apparatus according to claim 18, wherein the pulse generator includes amplification or attenuation for each generated pulse, and said apparatus includes complementary attenuation or amplification for each received pulse.

22. (Amended two times) An apparatus according to claim 18, further comprising a synchronous averager for the received signals.

23. (Amended two times) An apparatus according to claim 18, further comprising a matched filter for the received signals.

24. (Amended two times) An apparatus according to claim 18, further comprising amplification or attenuation for each generated pulse and complementary attenuation or amplification for each received pulse.

25. (Amended two times) An apparatus according to claim 18, further comprising a processor processing the received signals for each frequency band and an adder adding the processed signals.

26. (Amended two times) An apparatus according to claim 25, further comprising a detector detecting the modulus of the received signals and/or the variation with time of the frequency of the received signals.

27. (Amended two times) An apparatus according to claim 18, further comprising a receiver receiving complex analytical pulses.

28. (Amended two times) An apparatus according to claim 18, further comprising a selector selecting the frequency bandwidth and the amplitude of the low frequency pulses according to the line attenuation and its compliancy in terms of egress.

29. (Amended two times) An apparatus according to claim 18 wherein said pulse generator generates the pulses sequentially or simultaneously.

~~30. (Amended) A method according to claim 15 wherein said transmission channels are telephone lines comprising copper pairs between a central office and a subscriber, and further comprising a time domain reflectometry test circuit.~~

31. (Amended two times) An apparatus according to claim [17] 18, wherein said transmission channels are telephone lines comprising copper pairs between a central office and a subscriber [, and further comprising a time domain reflectometry test circuit].